

WHAT IS CLAIMED IS:

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1. Isolated nucleic acid having at least 80% nucleic acid sequence identity to a nucleotide sequence that encodes an amino acid sequence comprising the amino acid sequence shown in Figure 2 (SEQ ID NO:2).
  2. Isolated nucleic acid having at least 80% nucleic acid sequence identity to a nucleotide sequence comprising the nucleotide sequence shown in Figure 1 (SEQ ID NO:1).
  3. Isolated nucleic acid having at least 80% nucleic acid sequence identity to a nucleotide sequence comprising the full-length coding sequence of the nucleotide sequence shown in Figure 1 (SEQ ID NO:1).
  4. Isolated nucleic acid having at least 80% nucleic acid sequence identity to the full-length coding sequence of the DNA deposited under the ATCC accession number PTA-20 deposited with the ATCC on May 4, 1999.
  5. A vector comprising the nucleic acid of Claim 1.
  6. The vector of Claim 5 operably linked to control sequences recognized by a host cell transformed with the vector.
  7. A host cell comprising the vector of Claim 5.
  8. The host cell of Claim 7, wherein said cell is a CHO cell, a yeast cell or an *E. Coli* bacterium.
  9. A process for producing a PRO4425 polypeptides comprising culturing the host cell of Claim 7 under conditions suitable for expression of said PRO4425 polypeptide and recovering said PRO4425 polypeptide from the cell culture.
  10. An isolated polypeptide having at least 80% amino acid sequence identity to an amino acid sequence comprising the amino acid sequence shown in Figure 2 (SEQ ID NO:2).
  11. An isolated polypeptide having at least 80% amino acid sequence identity to an amino acid sequence encoded by the full-length coding sequence of the DNA deposited under the ATCC accession number PTA-20 deposited with the ATCC on May 4, 1999.
  12. A chimeric molecule comprising a polypeptide according to Claim 10 fused to a heterologous amino acid sequence.
  13. The chimeric molecule of Claim 12, wherein said heterologous amino acid sequence is an epitope tag sequence.

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14. The chimeric molecule of Claim 12, wherein said heterologous amino acid sequence is a Fc region of an immunoglobulin.

5 15. An antibody which specifically binds to a polypeptide according to Claim 10.

16. The antibody of Claim 15, wherein said antibody is a monoclonal antibody, a humanized antibody or a single-chain antibody.

17. Isolated nucleic acid having at least 80% nucleic acid sequence identity to:

10 (a) a nucleotide sequence encoding the polypeptide shown in Figure 2 (SEQ ID NO:2), lacking its associated signal peptide;

(b) a nucleotide sequence encoding an extracellular domain of the polypeptide shown in Figure 2 (SEQ ID NO:2), with its associated signal peptide; or

15 (c) a nucleotide sequence encoding an extracellular domain of the polypeptide shown in Figure 2 (SEQ ID NO:2), lacking its associated signal peptide.

18. An isolated polypeptide having at least 80% amino acid sequence identity to:

20 (a) an amino acid sequence of the polypeptide shown in Figure 2 (SEQ ID NO:2), lacking its associated signal peptide.

19. A method of alleviating a bone disorder in a mammal, comprising administering to said mammal, an effective amount of a PRO4425 polypeptide or an agonist thereof.

25 20. A method of increasing bone growth in a mammal, comprising contacting injured or developing bone in said mammal with PRO4425, thereby increasing the growth of said bone.

21. The method of Claim 19, wherein said agonist is an anti-PRO4425 polypeptide antibody.

30 22. The method of Claim 21 wherein said agonist is an antibody fragment.

23. The method of Claim 21 wherein the antibody fragment is a Fab fragment

35 24. A method of diagnosing a bone disorder in a mammal which comprises analyzing the level of expression of a gene encoding a PRO4425 polypeptide (a) in a test sample of tissue cells obtained from said mammal, and (b) in a control sample of known normal tissue cells of the same cell type, wherein a higher or lower expression level in the test sample as compared to the control sample is indicative of the presence of a bone disorder in said mammal.

25. A method of diagnosing a bone disorder in a mammal which comprises detecting the presence or absence of a PRO4425 polypeptide in a test sample of tissue cells obtained from said mammal, wherein the presence or absence of said polypeptide in said test sample is indicative of the presence of a bone disorder in said mammal.

5 26. An article of manufacture, comprising:

a container;

a label on the container; and

a composition comprising an active agent contained within the container; wherein the composition is effective for treating a bone disorder in a mammal, the label on the container indicates that the composition can be used for

10 treating bone disorders, and the active agent in the composition is a PRO4425 polypeptide.

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